Christina Patterson opened the discussion thanking the discussants for the terrific work and the useful comments. She agreed with John Fernald that TFP is hard to measure and, for this reason, her and co-authors also used patents data. Furthermore, she added that both the NBER-CES and the BLS-BEA datasets have similar level of TFP but different trends. Hence, the baseline result of the paper that, in the absence of sectorial imbalances, TFP growth would have been higher, remains valid. Finally, she explained that most of the specifications in the paper are unweighted because all the industries are informative of the existence of the mechanism described in the paper.

After Christina Patterson’s comment, Erik Hurst asked how to think about the dynamic process of TFP growth. Due to the existence of bottlenecks, do firms adjust their inputs over time and, thus, there will be an increase in TPF with a delay? Following up on this, Valerie Ramey asked whether the bottlenecks are created by a fixed supply of high-quality innovators that are attracted by a small number of large firms. If so, could this create incentives for large firms to integrate vertically to redistribute talent in a more efficient way? Valerie pointed out that, for example, during WW2, the government intervened to avoid bottlenecks. Daron Acemoglu agreed with the point made by Erik Hurst: if bottlenecks are resolved, then the model predicts an acceleration in productivity. However, it is hard to predict when these bottlenecks are resolved. Indeed, there are many possible stories, as the one suggested by Valerie Ramey, and the model does not discuss which distortions are creating these bottlenecks.

Following up, Gabriel Chodorow-Reich commented that in the BLS-BEA data used by John Fernald, the manufacturing sector displays a speed up in productivity, but not the service sector. On the other hand, the NBER-CES dataset used by the authors, displays a speed up in productivity for both the service sector and the manufacturing sector. Furthermore, the rise in concentration in the service sector should have displayed an increase in productivity, since smaller and less productive firms exited the market. Hence, the existence of large firms that benefit from upstream inputs makes aggregation very important. However, in the authors’ model only suppliers’ productivity dispersion matters, but all of the input-output network should be important in the mechanism proposed by the authors. Hence, Gabriel Chodorow-Reich asked if the authors could clarify the exercise that they did when holding the variance of one sector fixed because this implies an increase in productivity for such sectors which has aggregate effects throughout the input-output network. Daron Acemoglu discussed that there is no unambiguous way to solve the issue pointed out by Gabriel Chodorow-Reich because changing one variance at a time will also change all of them. This is why aggregate variance and supplier variance are kept constant at the level of the 1987-1997 period.

The next question was by Ricardo Reis, who asked about reverse causality in the regression using the patent dataset. Suppose that there is a fixed cost to file a patent, but that patents are not a particularly accurate measure of TFP. After an increase in demand, the market expands, and firms patent more because the net revenues clear the fixed cost. Mechanically, the number of patent citations of upstream firms rises and, possibly, more so for larger firms, so raising the variance of supplier patent growth. This is the independent variable of the authors’ specification, but it is now being caused by higher demand, rather than causing it. Daron Acemoglu pointed out that this story is plausible and indeed the authors faced this issue using a fixed-in-time network of citations. Hence, the ideas’ supply is not changing over time. Furthermore, the specification with the instrumental variable should assuage Ricardo Reis’ concerns.
Daron Acemoglu also thanked John Fernald for the insightful discussion. He added that they tried different weighting schemes, however none of them were able to effectively deal with John Fernald’s specific issue. Hence, the unweighted option seemed the best choice. Finally, Daron Acemoglu added that BLS-BEA regression is using 90 industries which are not granular enough to speak about the mechanism discussed in the paper. They chose the NBER-CES dataset because it contains around 450 industries, which still may not be granular enough.

Valerie Ramey asked John Fernald about possible explanations for the divergence of the NBER-CES dataset and BEA-BLS dataset. Is it possible that TFP has become more difficult to measure, given that the two datasets were similar before but have now diverged? John Fernald pointed out that the two datasets come from different sources. The BEA-BLS is mostly from national accounts while the NBER-CES comes from the census of manufacturing. Furthermore, the NBER-CES dataset relies on using the price deflator and the materials price deflator grows much more slowly in the NBER-CES dataset after 1997. Hence, this is a possible explanation for the divergence.

Silvana Tenreyro asked whether the data used in the paper also included the international input-output network. Christiana Patterson replied that for the TFP specifications, the whole input-output network is used, hence the international links are taken into consideration.

Finally, Şebnem Kalemli-Özcan asked whether the authors looked at the motivation of why some sectors experience a sharper increase in the TFP variance than others. Christina Patterson pointed out that this is not the focus of the paper. However, understanding why the variance of the TFP went up is an important step for future work.